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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,180	02/14/2001	Masato Sumikawa	0033-0694P	2465

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EXAMINER

NGUYEN, DILINH P

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 09/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/782,180

Applicant(s)

SUMIKAWA ET AL.

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-18 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

In view of the Letter For Clarification of Office Action in paper No. 11, the Examiner withdraws her previous Final Rejection and replace a new Final Rejection in paper No. 12.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyosawa (U.S. Pat. 6337257).

- Regarding claims 1 and 17, Toyosawa discloses a semiconductor device (figs. 2-3B, column 7, lines 30 et seq.) comprising:

a semiconductor wafer where semiconductor elements are formed (abstract)
having a surface 34 provided with an external connection electrode 47;

a back surface 36 opposite that with the external connection electrode, wherein grinding scratches formed by the grinding are removed to smooth the back surface (abstract); and

the back surface 36 of the chips 32 are in contact with another protective tape (column 12, lines 29-31). It would have been obvious that the protective tape reinforced the back surface of the chip.

3. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toyosawa (U.S. Pat. 6337257) in view of Ohuchi (U.S. Pat. 6271588).

Toyosawa discloses the claimed invention except for not specifically point out that the protective tape reinforced the back surface of the chip is formed of resin.

Ohuchi discloses a protective tape 22 is formed of resin (column 2, lines 46-50) to achieve a bonding function. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Toyosawa to achieve a bonding function for the semiconductor device, as shown by Ohuchi.

- Regarding claim 4, Ohuchi discloses wherein the resin is selected from the group consisting of resin of epoxy type and resin of polyimide type (column 2, lines 46-50).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyosawa (U.S. Pat. 6337257) in view of Ohuchi (U.S. Pat. 6271588) and further in view of Horiuchi et al. (U.S. Pat. 6242799).

Toyosawa and Ohuchi disclose the claimed invention except for the resin is formed of a material having an elastic modulus of $1.5 \times 10^6 \text{ N/m}^2$ to $5.0 \times 10^6 \text{ N/m}^2$.

Horiuchi et al. disclose a resin having a Young's modulus of 10 MPa or less (column 5, lines 50-55). Horiuchi et al. do not specifically point out the range of the Young's modulus is from $1.5 \times 10^6 \text{ N/m}^2$ to $5.0 \times 10^6 \text{ N/m}^2$, but 10 MPa or less is included in the range. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Toyosawa and Ohuchi to provide a resin are suitably used, as shown by Horiuchi et al.

5. Claims 5-8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki et al. (U.S. Pat. 6136668).

- Regarding claims 5 and 18, Tamaki discloses a method of manufacturing a semiconductor device comprising the steps of:

grinding and polishing processes are performed for the back surface of the semiconductor wafer 4a; having an external connection electrode on the opposite surface; and applying adhesive material 31 on the grinded surface (figs. 7-10, column 7, lines 1-6). It would have been obvious that the adhesive material is formed of resin.

- Regarding claim 6, Tamaki discloses the step of cutting the semiconductor substrate after the step of applying (column 7, lines 43-45 and 55-60).
- Regarding claims 7-8, Tamaki discloses the step of previously grinding the surface to be abraded.

6. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki et al. (U.S. Pat. 6136668) in view of Sakaguchi et al. (U.S. Pat. 6150194).

Tamaki et al. disclose the claimed invention except for the step of the resin is printed. Sakaguchi et al. disclose a method for producing a semiconductor device, comprising the step of: resin is printed (column 4, lines 60-64) to provide better control of thickness of the resin layer on a tape substrate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Tamaki et al. to control the appropriate thickness of the resin layer for the device, as shown by Sakaguchi et al.

7. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamaki et al. in view of Takahashi et al. (U.S. Pat. 6153448).

Tamaki et al. disclose the claimed invention except for the step of the resin is applied by spin-coating. Takahashi et al. disclose a method for manufacturing a semiconductor device comprising the step of:

an insulating resin is spin-coated on the semiconductor wafer (column 8, lines 51-54) to adjust the thickness of the resin layer. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Tamaki et al. to adjust the thickness of the resin layer for the device, as shown by Takahashi et al.

Response to Arguments

Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection. Therefore, see the new rejection above.

Response to Letter for Clarification

The applicant argues that the in the explanation of the rejection, the Patent to Tao was not discussed.

Claims 1 and 17 are rejected over Toyosawa only. Typographical errors indicated an incorrect listing of the rejected patents in the heading; therefore, please disregard the Patent to Tao.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyosawa (U.S. Pat. 6337257) in view of Ohuchi (U.S. Pat. 6271588).

The applicant argues that no comment was made on the details of claim 8.

The details of claim 8 was made in page 4 of the previous Final Office Action, "regarding claims 7-8, Tamaki discloses the step of previously grinding the surface to be abraded".

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (703) 305-6983. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, OLIK CHAUDHURI can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)


Application/Control Number: 09/782,180
Art Unit: 2814

Page 7

308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DLN
September 16, 2002


Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800